Amendments to the claims:

1 (currently amended): A method of isolating sources of variance in parametric data comprising steps of:

receiving a data set of measurements for a plurality of physical parameters;

~~(a)~~ cleaning the ~~a~~ data set to remove ~~of~~ measurements that may introduce error ~~for a plurality of parameters~~;

~~(b)~~ generating a principal component analysis basis from the cleaned data set;

~~(c)~~ estimating an independent component analysis model from the principal component analysis basis;

~~(d)~~ calculating percentages of variance for the plurality of parameters explained by each component in the estimated independent component analysis model;

removing a component from the principal component analysis basis when ~~(e) if~~ the calculated percentages of variance indicate that the ~~a~~ component is a minor component, ~~then transferring control to step (f), else transferring control to step (g); (f) removing the minor component from the principal component analysis basis and transferring control to step (c)~~; and

~~(g)~~ generating as output the estimated independent component analysis model excluding the ~~wherein no component of the independent component analysis model is a~~ minor component; and

identifying a physical mechanism corresponding to a significant component of the estimated independent component analysis model.

2 (currently amended): The method of Claim 1, ~~wherein~~ the calculated percentages of variance indicating ~~indicate~~ that a component is a minor component when ~~insignificant if~~ a percentage of variance for each of the plurality of parameters explained by the component is less than a minimum percentage of variance for a single parameter.

3 (currently amended): The method of Claim 1, ~~wherein~~ the calculated

percentages of variance <u>indicating</u> ~~indicate~~ that a component is <u>a minor component when</u> ~~insignificant if~~ an average percentage of variance for the plurality of parameters explained by the component is less than a minimum average percentage of variance.

4 (currently amended): The method of Claim 1 further comprising a step ~~(h)~~ of calculating confidence intervals for rotation angles of the estimated independent component analysis model.

5 (currently amended): The method of Claim 4 further comprising a step ~~(i)~~ of labeling a component of the estimated independent component analysis model to correspond to a specific <u>physical</u> process.

6 (currently amended): The method of Claim 5 <u>further comprising a step of labeling</u> ~~wherein~~ the component ~~is labeled~~ as ~~one of~~ critical dimension of gate width effect on device drive current, critical dimension of gate width effect on device threshold voltage, critical dimension of gate length effect, implant dose effect, and gate oxide thickness effect.

7 (currently amended): The method of Claim 5 further comprising a step ~~(j)~~ of examining the labeled component to identify <u>the</u> ~~a~~ corresponding physical mechanism associated with the specific <u>physical</u> process.

8 (currently amended): A computer <u>readable storage medium tangibly embodying instructions for a computer that when executed by the computer implement a method</u> ~~program product~~ for isolating sources of variance in parametric data<u>, the method</u> comprising

~~a medium for embodying a computer program for input to a computer; and~~

~~a computer program embodied in the medium for causing the computer to perform~~ steps of:

<u>receiving a data set of measurements for a plurality of physical parameters;</u>

(a) cleaning the ~~a~~ data set to remove ~~of~~ measurements that may introduce error ~~for a plurality of parameters~~;

(b) generating a principal component analysis basis from the cleaned data set;

(c) estimating an independent component analysis model from the principal component analysis basis;

(d) calculating percentages of variance for the plurality of parameters explained by each component in the estimated independent component analysis model;

removing a component from the principal component analysis basis when ~~(e) if~~ the calculated percentages of variance indicate that the ~~a~~ component is a minor component, ~~then transferring control to step (f), else transferring control to step (g); (f) removing the minor component from the principal component analysis basis and transferring control to step (c)~~; and

(g) generating as output the estimated independent component analysis model excluding the ~~wherein no component of the independent component analysis model is a~~ minor component; and

identifying a physical mechanism corresponding to significant components of the estimated independent component analysis model.

9 (currently amended): The computer readable storage medium ~~program product~~ of Claim 8, ~~wherein~~ the calculated percentages of variance indicating ~~indicate~~ that a component is a minor component when ~~insignificant if~~ a percentage of variance for each of the plurality of parameters explained by the component is less than a minimum percentage of variance for a single parameter.

10 (currently amended): The computer readable storage medium ~~program product~~ of Claim 8, ~~wherein~~ the calculated percentages of variance indicating ~~indicate~~ that a component is a minor component when ~~insignificant if~~ an average percentage of variance for the plurality of parameters explained by the component is less than a minimum average percentage of variance.

11 (currently amended): The computer ~~readable storage medium~~ ~~program product~~ of Claim 8 further comprising a step ~~(h)~~ of calculating confidence intervals for rotation angles of the estimated independent component analysis model.

12 (currently amended): The computer ~~readable storage medium~~ ~~program product~~ of Claim 11 further comprising a step ~~(i)~~ of labeling a component of the estimated independent component analysis model to correspond to a specific ~~physical~~ process.

13 (currently amended): The computer ~~readable storage medium~~ ~~program product~~ of Claim 12 ~~further comprising a step of labeling~~ ~~wherein~~ the component ~~is labeled~~ as ~~one of~~ critical dimension of gate width effect on device drive current, critical dimension of gate width effect on device threshold voltage, critical dimension of gate length effect, implant dose effect, and gate oxide thickness effect.

14 (currently amended): The computer ~~readable storage medium~~ ~~program product~~ of Claim 12 further comprising a step ~~(j)~~ of examining the labeled component to identify ~~the~~ ~~a~~ corresponding physical mechanism associated with the specific ~~physical~~ process.